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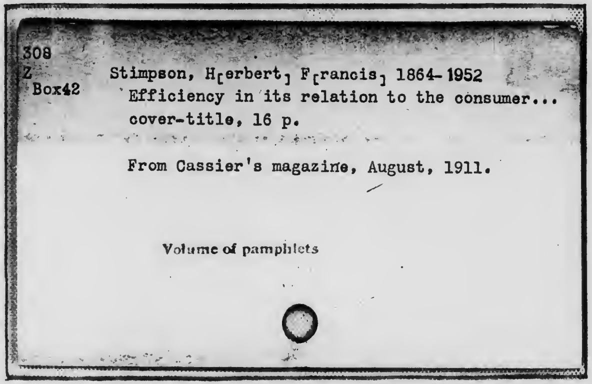

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From CASSIER'S MAGAZINE, August, 1911

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EFFICIENCY IN ITS RELATION TO THE CONSUMER

By H. F. Stimpson

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EFFICIENCY is the topic of the day. Few, however, comprehend what its meaning is, who the persons are whose capacity in this respect is susceptible of development or what its development means to that most important person, the consumer.

Efficiency, as a noun, is the relation between the action which has actually produced a known result and the action which would have produced a result which had been determined upon in advance of the performance of the action. It may be qualified by an accompanying adjective, as high or low, or expressed in the form of a percentage. In the current articles it is generally alluded to as being a characteristic which is the peculiar property of manual or mechanical workers and which, as such, should be developed by the direct contact of certain specialists with such workers. Not so. Efficiency is a characteristic common to every person, animal, machine or substance capable of developing or resisting energy. The efficiency of the manual worker should be developed by his immediate line superior. The efficiency of the line superior, in his turn, should have been previously developed by his superior, and so on up the ladder until the chief executive is reached. This is a point at which the specialist properly comes into direct contact with the organization. The time at which this contact should be made is in advance of or simultaneous with the operation of the organization, and not subsequent thereto.

The logic of this is at once apparent. The employment of specialists is simply a method of expanding the brain of the executive. The volume of ascertained fact is now so great that it is physically and mentally impossible for any man, in the time usually allotted to him, to investigate thoroughly and pass upon the details of all the matters which require his decision. As, however, he must issue all directions for action, either personally or by deputy, it is necessary that all information should focus in him or in his immediate vicinity. This can be accomplished only by the assistance of the proper specialists, acting in a purely advisory and personal capacity, who not only investigate for the executive and formulate the technical portions of the decisions he wishes to make and the directions he desires to give, but supplement these directions with such detailed explanations as may be required by the administrators or workers. It is only, therefore, when the efficiency of the executive has been thus developed and supplemented, so that he is enabled to correctly organize his forces, that the efficiency of the forces themselves can be developed.

The development of the efficiency of one or even many organizations, however, is not by any means the ultimate result to be desired. The effect of such efforts upon the community as a whole must be carefully studied. Take a case where the efficiency of the productive workers is made the object of special effort. The immediate result is apt to be a diminution of their numbers, unless the efficiency of the salesmen is so increased as to maintain a sufficient volume of work and the financial department is enabled to supply a correspondingly increased amount of capital. If these conditions are not brought about, the purchasing power of those thrown out of work is decreased and their support is added to the burden already carried with effort by the ones at work. This, in turn, reduces the volume of business, and so a vicious cycle is apt to be initiated. It is perfectly true that the periodic wages of those who continue to work may have been increased by the operation of a bonus system. But while this is a direct gain to such workers, it is offset to some extent by the added burden alluded to above. It is also true that the unit cost of the work to the employer has been decreased, which is a direct benefit to him, yet he also shares in this added burden. But it is still more true that the cost to the consumer has, in all probability, not decreased, and hence no benefit has resulted to him, yet he, too, shares in the added burden. As the consumers constitute a far larger proportion of the entire community than the combined employers and workers in any line of effort, it is clear that the community as a whole has not been benefited. It may even have been harmed because the workers who continue to be employed do not themselves, entirely, maintain those who are displaced. Much of the burden of the support of these latter therefore falls upon that portion of the community which has not received an increase of income from the operation in question.

If, now, we uniformly develop the efficiency of succeeding organizations, we shall continue to increase the number of non-workers, to add somewhat to the incomes of those who remain at work and to the profits of their employers and also to their burden, but to add nothing to the incomes of the workers in plants not so developed while adding to the load they already carry. The purchasing power of the community as a whole, under the present commercial methods, will continue to decrease and a constantly increasing and restrictive pressure will be brought to bear on the volume of trade in general. It would, therefore, seem to appear, because the benefits of the development of efficiency seem to stop short of reaching the ultimate consumer, that such development is injurious and should be discouraged.

The purpose of this article is to endeavor to show that this limitation of the benefits of efficiency is due primarily to an error in the fundamental assumption upon which the whole present scheme of commerce is based, rather than to any defect in the gospel of efficiency. This assumption is that commerce consists in the exchange of certain physical substances known as commodities. This exchange is not usually effected by the direct transfer of the commodities themselves, as in the days of barter, but through the direct or indirect use of a particular commodity known as gold, as a medium of exchange. This, together with its representatives, is commonly termed money. The values of commodities are, at present, arbitrarily fixed by man and are expressed in terms of units of gold, said units possessing certain fixed characteristics as to quantity and quality.

While this view of commerce would seem to necessitate the possession of a quantity of some commodity or of money as a prerequisite to the conduction of commerce, we find, in practice, that the exertion of either mental or physical energy is also accepted, in the place of a commodity, in exchange for money. At the same time both capital and labor deny that the exertion of energy is a commodity. The situation is further complicated not only by the fact that we have no units for measuring mental energy, but that the methods which we have for the use of the units by which we measure physical energy are very crude. The result is that our commercial processes are in an extremely unsatisfactory condition; that there is a constant, annoying and unnecessary strife between the employer and employee, and that the effect on the consumer, be he capitalist or laborer, is detrimental to such an extent that the only reason why he does not violently rebel is his ignorance both of the existence of the fact and of a proper remedy.

Let us, therefore, in considering this most important subject, go back to real fundamentals:

1. The ultimate object of the community is the enjoyment of healthful life. It is not enough that we produce and sustain life. We must have leisure and opportunity to enjoy the act of living and the exercise of our natural faculties, both mental and physical.

2. Life is sustained and made enjoyable by the use of commodities. The commodity, therefore, is subordinate to life. Any factor in the production of a commodity is still more subordinate to the principal end of existence.

3. A commodity is raw material which has been fitted, by the application of energy, to the use and convenience of many. From a consideration of "2" we see that such application is insignificant when compared with the operation of living. Work, therefore, is in no sense to be considered as an end, but only as a means to an end. This end is "life."

4. Energy is of two distinct types:

   A. Physical, whose subdivisions are:

      1. Mechanical.
      2. Animal.
      3. Human.

B. Mental, whose subdivisions are:

1. Human.
2. Superhuman.

For obvious reasons, allusion will be made at present to human mental energy alone.

5. Mental energy, the peculiar property of mankind, is essential to the proper application of all other kinds of energy controlled or directed by man, whether exerted by machinery, by animals or by his own body. Curiously enough, we know less about it than about almost any other kind of energy.

6. The real value of a commodity to man is, therefore, proportionate to the amount of energy which has been absorbed by the raw material. To determine this absorption we need proper units for the measurement of both types of energy. We have the foot-pound-minute unit or horsepower for measuring physical energy. We have no unit at all for measuring mental energy. All human energy seems to consist simultaneously of both physical and mental types. When the former largely predominates, we speak of the combination as unskilled labor; when both types are more nearly equal we speak of it as skilled labor; when the mental energy predominates, we speak of the combination as an art or a science. This inexact characterization, caused by lack of proper units, makes it extremely difficult to properly adjust the conditions relative to the three different grades of effort. Since the value of a commodity is the amount of energy which it has absorbed, true commerce must consist in the exchange of this rather than in the exchange of the commodities which the energy has produced.

7. Given proper units for the purpose of measurement and taking human physical energy as a basis, we should next determine the relative values, downward, of animal and mechanical energy, and upward, of mental energy.

At present the amount of physical energy, known as a kilowatt-hour, and which can be purchased in large quantities, in the form of electro-mechanical energy, for two cents, would cost about two dollars and twenty-eight cents, if purchased in the form of human physical energy at the rate of twenty cents an hour. In all probability, as will perhaps be deduced from this article, this ratio is not strictly correct. But there is no doubt but that human physical energy can liberate and put into action a far greater amount of energy of the kind which has its terrestrial origin in fuel, in falling water, in wind, or in animals. Hence, measured by human physical energy, such energy is cheaper, just as human physical energy, in its turn, is cheaper than mental energy. Therefore, a correct and exact knowledge of the true ratio of value between the various types is fundamentally necessary for their correct and equitable exchange.

8. To properly conduct what we now realize is the only true commerce it is necessary to establish correct relations between units of all kinds of energy and units of the medium by means of which the exchange is effected. This we have already done to some extent. For instance, in the purchase of coal it is now not at all an uncommon practice to adjust the price according to the number of thermal units contained, rather than according to the weight of the gross substance. While this is a step in the right direction, the ultimate process of exchange will not be correctly consummated until the ratio between the energy contained in the coal and the money paid for it is correctly adjusted to that between the said money and the energy by which the money was earned. Professor Imbert, of the University of Montpellier, France, is reported to have discovered that the price of fifty centimes for cutting one thousand grape-vine shoots of less than six millimetres represented an effort of one hundred ten kilos, whereas the price of sixty centimes for cutting one thousand shoots of a larger diameter represented an effort of two hundred thirty-four kilos. Here was a plain instance of the marked disproportion which undoubtedly permeates our entire commercial system, and is the cause of much of the poverty and distress, whose existence all admit, to say nothing of the continually-increasing disputes between capital and labor. It is absolutely impossible to correct this trouble by increasing the wages of labor. This only adds to the confusion. What is necessary is a revision of our methods of exchanging the application of energy, or, as we continually call it, of labor.

9. It has been found to be both practical and necessary for the protection of the people as a whole, and for the safeguarding of business transactions of every description, that the quantity and quality of the gold in a dollar, which is the basic unit of our present medium of exchange, should be controlled and guaranteed by the government. It would seem to be even more necessary and quite as practicable for the government to eventually guarantee the quantity and quality of energy in a unit of any commodity. Besides the fact that not one producer in ten knows his costs with any degree of accuracy (I speak advisedly) the processes of manufacturing are now so complicated that the unaided judgment of the purchaser no longer af-

fords him adequate protection. Especially is this the case in relation to the practice, now commonly understood to exist, of exacting as large a percentage of profit (or inflation of energy) as "the traffic will bear." While this is generally looked upon with approbation, it is simply because it is not commonly realized that it is only when the number of those to whom a man sells exceeds the number of those from whom he buys that he can permanently prosper under this method. In other words, in the majority of cases, the energy which a worker exerts in order to earn a dollar is by no means equaled by that which he receives when he spends the dollar. If, as we have seen, true commerce is the exchange of energy, the process as at present conducted is most absurdly inequitable. Suppose a day's exertion of human physical energy to be worth one dollar. Consider a man who, working at 90 per cent. efficiency, still receives a dollar. The man then undertakes to spend the dollar in buying a commodity produced by five men working in sequence and at 90 per cent. efficiency in each case. We shall find that 90% × 90% × 90% × 90% × 90% equals 60%. In other words, the man has to exert his energy for one and one-half days to get the *equal* of the energy which he actually exerted in the first day. (Net 1.26 days)

If, as is frequently now the case, the rate of efficiency is far lower than 90 per cent., if the number of concerns that, in sequence, produce any commodity is far in excess of five, and if, also, each of such concerns, by taking an unearned increment of profit, misrepresents the amount of energy which it has contributed to the final result, the condition of the consumer will be indeed pitiable, as is actually the case at present. It is absolutely impossible for the great majority of persons to "hold out" on the few to whom they sell, as much as can and will be "held out" on them by the greater number contained in the long sequence between the raw material and the finished product which the consumer buys.

From the above it may be seen that the imperfections of our present commercial methods, using the word in the broadest sense, are the source of poverty or the so-called unequal distribution of wealth, together with all the evils which follow in its train, and also, as the error is not principally in the relations between capital and labor, that an increase in wages is not the principal remedy. We must begin by recognizing the fact that energy differs in its value to society according to type or subdivision of type, rather than according to the varieties of the same type or subdivision. All types of human physical energy, for instance, should in themselves be considered as equally valuable. When, however, one variety of human physical energy requires a greater amount of mental energy than another in the direction of its application it is not only the additional quantity of energy but its superior type that increases the value of the service rendered to the community which receives the service.

The following constructive measures are therefore suggested as the first steps which should be taken in an effort to improve the present unbearable conditions:

1. The determination of a suitable unit for measuring mental energy.

2. The determination of the rate at which both mental and physical energy can be generated by normal individuals, existing under normal conditions, upon normal rations, and still keep within the elastic limits of the individual.

3. The determination of proper coefficients to allow for age and other variations in individuals.

4. The determination of the relative values of the different types of energy, including their subdivisions, taking human physical energy as the basis.

5. The determination of methods by which the government, beginning with the raw material of the principal life-sustaining commodities, may control and guarantee the normal quantity and quality of energy absorbed by every such commodity. This is not exactly a dream. The Regal Shoe Company state that their shoes are sold for an advance of but 5 per cent. on the cost of production. If the government certified that the cost was normal and if the purchaser knew the true value of the energy which he had expended to earn his money, the conditions would closely approximate my ideal. The government now certifies to standards of weight, length and volume, but leaves the application of the standards to the purchaser. The government certifies, to a degree, as to the purity of food. It might equally well certify to other characteristics.

It is believed that this paper approaches this most important subject from an entirely new angle; namely, the separate consideration of the values created by the application to raw material of mental energy and of physical energy. It is not until we become able to correctly determine the amounts and relative values of the efforts of our brains and of our bodies that we can rationally conduct the process of exchange of these efforts. When that has become possible, and not before, the benefit of the development of efficiency will be equitably distributed over the entire community, as should be the case. At the present time investigations into existing efficiency are chiefly useful, as they reveal the enormous inadequacy of our present commercial methods and the disproportion between the values which we give to life itself and those which we give to the things which contribute more or less to the sustenance of life.

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